

RM-PTO-1390
iv. 5-93)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

2489-1-001

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

09/555945

INTERNATIONAL APPLICATION NO.
PCT/ES99/00322INTERNATIONAL FILING DATE
11 OCTOBER 1999PRIORITY DATE CLAIMED
14 October 1998

TITLE OF INVENTION
DEVICE FOR DECORATION OF CERAMIC TILES

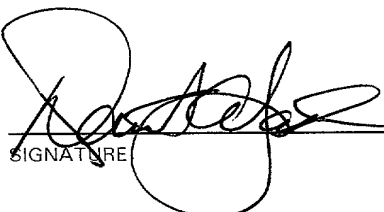
APPLICANT(S) FOR DO/EO/US
José Vicente TOMÁS CLARAMONTE

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

- *1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371
 2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
 3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
 4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
 5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US)
 6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
 7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☒ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
 8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
 9. ☒ An executed oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
 10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).
- Items 11. to 16. below concern other document(s) or information included:**
11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
 12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
 13. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
 14. ☐ A substitute specification.
 15. ☐ A change of power of attorney and/or address letter.
 16. ☒ Other items or information:

THREE (3) SHEETS OF FORMAL DRAWINGS (Figures 1-5); VERIFIED STATEMENT CLAIMING SMALL ENTITY STATUS; COPY OF INTERNATIONAL SEARCH REPORT; PRIORITY DOCUMENT

EXPRESS MAIL "MAILING CERTIFICATE NO.": EL629423965US DATE OF DEPOSIT: JUNE 6, 2000

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.50) 09/555945		INTERNATIONAL APPLICATION NO. PCT/ES99/00322		ATTORNEY'S DOCKET NUMBER 2489-1-001	
17. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS	PTO USE ONLY
Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO \$840.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00 <div style="text-align: right; margin-top: 10px;">ENTER APPROPRIATE BASIC FEE AMOUNT =</div>				\$ 970.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)). <input type="checkbox"/> 20 <input type="checkbox"/> 30				\$	
Claims	Number Filed	Number Extra	Rate		
Total Claims	7 -20 =	0	X \$ 18.00	\$.00	
Independent Claims	1 -3 =	0	X \$ 78.00	\$.00	
Multiple dependent claim(s) (if applicable)			+ \$260.00	\$ 260.00	
TOTAL OF ABOVE CALCULATIONS =				\$ 1,230.00	
Reduction for 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				\$ 615.00	
SUBTOTAL =				\$ 615.00	
Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)). <input type="checkbox"/> 20 <input type="checkbox"/> 30				\$	
TOTAL NATIONAL FEE =				\$ 615.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	
TOTAL FEES ENCLOSED =				\$ 615.00	
				Amount to be: refunded	\$
				charged	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>615.00</u> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. <u>11-1153</u> in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>11-1153</u> . A duplicate copy of this sheet is enclosed. <p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</p> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <p>SEND ALL CORRESPONDENCE TO:</p> <p>DAVID A. JACKSON KLAUBER & JACKSON 411 HACKENSACK AVENUE 4TH FLOOR HACKENSACK, NEW JERSEY 07601</p> </div> <div style="width: 45%; text-align: center;">  SIGNATURE NAME <u>DAVID A. JACKSON</u> REGISTRATION NUMBER 26,742 </div> </div>					

EXPRESS MAIL "MAILING CERTIFICATE NO.": EL629423965US DATE OF DEPOSIT: JUNE 6, 2000

09/555945
422 Rec'd PCT/PTO 06 JUN 2000

PATENT
2489-1-001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS : José Vicente TOMÁS CLARAMONTE
INTERNATIONAL
APPLICATION NO. : PCT/ES99/00322
FILED : 11 October 1999
FOR : DEVICE FOR DECORATION OF CERAMIC TILES

PRELIMINARY AMENDMENT

ASSISTANT COMMISSIONER FOR PATENTS
BOX PCT
WASHINGTON, D.C. 20231

Sir:

Prior to calculating the fees pursuant to the entry into the National Phase of the above-identified Application, please amend the claims as follows:

IN THE CLAIMS:

In Claim 4, line 2, delete "the preceding claims" and insert --Claim 1--.

REMARKS

The above amendments are submitted herewith to reduce multiple dependencies and to conform the claims more closely to U.S. practice.

[illegible]

Respectfully submitted,

KLAUBER & JACKSON
411 Hackensack Avenue
Hackensack, NJ 07601
(201) 487-5800

Applicant or Patentee: José Vicente TOMÁS CLARAMONTE

Application or Patent No.:

Filed or Issued:

For: DEVICE FOR DECORATION OF CERAMIC TILES

**VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 C.F.R. §§ 1.9(f) AND 1.27(b)) - INDEPENDENT INVENTOR**

As a below-named Inventor, I hereby declare that I qualify as an Independent Inventor as defined in 37 C.F.R. § 1.9(c) for purposes of paying reduced fees under Sections 41(a) and 41(b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled DEVICE FOR DECORATION OF CERAMIC TILES described in:

- ☒ the specification filed herewith
☐ Application No. _____, filed
☐ Patent No. _____, issued

I have not assigned, granted conveyed, or licensed and am under no obligation under contract or law to assign, grant, convey, or license any rights in the Invention either to any person who could not be classified as an independent inventor under 37 C.F.R. § 1.9(c) if that person had made the Invention, or to any concern that would not qualify as either a small business concern under 37 C.F.R. § 1.9(d) or a nonprofit organization under 37 C.F.R. § 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant convey, or license any rights in the invention is listed below:

- ☐ no such person, concern, or organization
☐ persons, concerns, or organizations listed below*

* NOTE: Separate verified statements are required from each named person, concern, or organization having rights to the invention averring to their status as small entities. (37 C.F.R. § 1.27.)

FULL NAME _____

ADDRESS _____
[] individual [] small business concern [] nonprofit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earlier of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 C.F.R. § 1.28(b).)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code; and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name José Vicente Tomás Claramonte
Signature José Vicente Tomás Claramonte Date 25-4-00

DEVICE FOR DECORATION OF CERAMIC TILES**OBJECT OF THE INVENTION**

5 The invention refers to a device and process for decorating ceramic tiles that is based on the projection of ink on the surface to be printed, and whose purpose is to provide a higher printing speed.

10 Another object of the invention consists of providing the head with total modularity, so that the head is comprised of at least two independent printing modules that are easily replaceable, in such a way that in the event that a failure is produced it suffices to remove the defective printing module and to introduce a new one.

15 Just as it is expressed in the title of this specification, the invention is applicable to the decoration of ceramic tiles, but it can likewise be used in any sector of the industry that requires the printing of ink on a surface.

BACKGROUND OF THE INVENTION

20 The use of devices that permit the printing of ink on a surface that is conveyed by a conveyor belt or that is immobile, for which purpose it has a control circuit that controls the operation of a head that carries out the projection of drops of ink for the printing of the desired decorative motif, is conventionally widely known.

25 This type of device has the inconvenience that the head is constituted by a single printing element, in such a way that it does not occupy the entire width of the tile, for which purpose in order to print the complete decorative motif it is necessary to make several passings of the surface or of the head in order to complete the decorative motif, which determines that the printing speed is considerably reduced.

35 The use of several heads for printing different colors of ink which likewise has the inconvenience that a single head is used for each color of ink is also known

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in the prior art. The use of a single head for each color of ink likewise determines the need to make several passings in order to complete the desired motif, which also affects the marking speed which is considerably reduced.

It should also be pointed out that conventional heads have the inconvenience that they are not modular and therefore in the event that there is a failure, there is the inconvenience that the repair requires more time.

DESCRIPTION OF THE INVENTION

In order to solve the above mentioned inconveniences, the invention has developed a new device for the decoration of a surface by means of printing ink, for which purpose it has means for projecting the ink on the tile in order to print the desired motif; and it is characterized in that it has at least one head that is constituted by at least two independent printing modules, that are connected to a control unit that controls the operation of each printing module independently, in order to print the desired motif.

The independent printing modules are situated in the head obliquely with respect to the trajectory of the tiles, and each head has to include a sufficient number of printing modules that make it possible to cover at least the entire width of the tile, in such a way that with a single passing of the tile along the conveyor belt, the complete printing of the desired motif is carried out, in such a way that the printing speed is increased.

Wider printing modules could also be used, in such a way that they can be placed perpendicular to the printing axis.

The distribution of the printing modules is done in such a way that they are one after another and/or parallel with a certain unalignment, in such a way that the

printing band of each one of said printing modules is situated contiguously to the bands of other printing modules, covering the entire width of the tile.

Each independent printing module is constituted by a microprocessor and the corresponding memory in order to operate independently under the control of the control unit.

Although it has been indicated that at least two printing modules are used, it is evident that a single printing module may be used, as long as this module has dimensions that cover the entire width of the tile.

The device of the invention also considers the possibility of having at least as many parallel heads as printing colors are required to print the desired motif, so that each printing module of each head or heads provided in series, in order to cover the entire width of the tiles is (are) connected with the same ink tank, in such a way that the multicolor printing is done in a single passing, whereby the printing speed is considerably increased.

The described structure of the device of the invention permits a superior printing quality to be obtained than 200 dpi (dots per inch).

The control unit of the device of the invention has communication means in order to carry out its connection to other control computers of other devices, or to other computers by network, memory cards and other communication and data storage systems, in such a way that remote management and verification of the printing devices can be carried out.

Obviously the device of the invention can operate in combination with other conventional decoration devices, such as flat serigraphy, or rotary serigraphy, devices, decoration with a roller or others existing on the market.

The device of the invention can be applied on those pavings and coverings that are produced by single baking or by double baking, including rapid double baking and porous single baking, and likewise stoneware products and porcelain stoneware products manufactured by single baking. Likewise, the device of the invention is applicable to all those pavings and coverings that are produced by pressing or by extrusion.

It also proves to be evident that the device of the invention can be applied before a first baking or else between successive bakings.

In order to provide a better understanding of this specification and forming an integral part thereof, a series of figures in which the object of the invention has been represented in an illustrative and non-restrictive manner are attached hereto.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 shows a schematic plan view of a possible embodiment of the invention in which four parallel heads are used, each one of the heads being connected to a tank with different colors of ink in order to do the marking in different colors.

Figure 2 shows a bottom view of a possible embodiment of the distribution of two different printing modules in one head.

Figure 3 shows a perspective view of a printing module of those included in figure 2.

Figure 4 shows a perspective view of a possible embodiment of the complete device of the invention.

Figure 5 shows a functional block diagram of a possible embodiment of the control circuits of the device of the invention, that permits independent control of each one of the printing modules.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A description is made hereinafter of the invention

based on the above cited figures.

The device of the invention has a conveyor belt (1) that produces the conveyance of the tiles (2) to be printed and in whose trajectory some heads (3) are arranged so that as the tiles pass along the bottom part of the heads the printing of the desired decorative motif on the tiles (2) is produced.

Each one of the heads (3) is connected to an ink tank (4), each one with a different color, in such a way that each one of the heads does the printing corresponding to the color that the tank with which it is connected includes, the printing of the desired decorative motif ending when the tile passes under the last head (3).

Each one of the heads (3) is constituted by a plurality of printing modules (5), provided with the corresponding slot (6) for the discharge of the projected ink. Therefore, each one of the printing modules (5) of a head (3) projects the same color of ink.

A very important characteristic of the device of the invention, consists of that each one of the printing modules (5) is independent and the control thereof, is likewise done independently, just as it will be explained hereinafter.

The printing modules (5) are located obliquely with respect to the head and to the trajectory of the tiles, and are situated in such a way that they cover the entire width of the tiles, in order to achieve with a single passing of the tile the total printing of the decorative motif. Hence, the printing band of each module (5) is located contiguously in order to cover the entire width of the tile.

A single head has been used in the embodiment for the printing of each color, but obviously more heads can be arranged in series, if it were necessary to cover the entire width of the tile.

Each printing module (5) includes a control circuit (9), a microprocessor (10) and a memory (11) in order to permit the independent operation of the mechanism (12) for injection of the ink that comes out through the slot (6).

In order to achieve the independent operation of each one of the printing modules (5), a control unit (13) that controls the independent operation of each one of said printing units (5) has been provided for, for which purpose said control unit (13) has a control circuit (14) that is connected to a microprocessor (16), to a screen (19), to a keyboard (18) and to an outside communications module (15) through which the connection to other computers (17) is made possible.

The microprocessor (16) includes the corresponding memory in which the operating program according to the desired decorative motif is included.

Hence, as of the program stored in the microprocessor (16) different instructions are sent to each one of the microprocessors (10) of the printing modules (5) by means of the memories (11), in such a way that each printing module (5) is totally independent and therefore easily replaceable, for which purpose the corresponding connectors that allow the easy removal thereof and the subsequent introduction of a new module are included, thus considerably facilitating the repair in the event of failure.

Therefore, based on the description made, it is easily understood that the decorative motif of the tile is a function of the included program, which in turn should be modified by each one of the microprocessors (10), upon partially reading the information contained in the memory (11), printing different decorative motifs, such as the case of the decoration of marble in which different effects are desired may be, that evidently are not homoge-

neous for each one of the tiles.

Just as it has been previously expressed, the control unit (13) permits the connection with other computers (17) in order to allow the exchange of information with other devices and/or to permit the remote management and verification of the printing devices.

Reference numeral (7) of figure 4, shows a bridge in which the different heads (3) are included, and the front of the machine includes the keyboard (18) by means of which programming of the device is done and the corresponding screen (19) through which the different data that permit the correct operation of the machine are displayed.

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CLAIMS

1.- Device for decoration of ceramic tiles, that has means for conveyance of tiles in whose trajectory means for projection of ink on the tile in order to print the desired motif are arranged; and is characterized in that it has at least one head (3) that is constituted by at least two independent printing modules (5) that are connected to a control unit (13) that controls the operation of each printing module independently in order to print the desired motif.

2.- Device for decoration of ceramic tiles, according to claim 1, characterized in that the independent printing modules (5) are situated obliquely with respect to the trajectory of the tiles, and all in such a way that the marking band of each one of said printing modules (5) is located after the adjacent ones.

3.- Device for decoration of ceramic tiles, according to claim 2, characterized in that the independent printing modules (5) are located one after another and/or parallel with a certain unalignment.

4.- Device for decoration of ceramic tiles, according to the preceding claims, characterized in that the printing modules (5) occupy at least the entire width of the tile.

5.- Device for decoration of ceramic tiles, according to claim 1, characterized in that each independent printing module (5) is constituted by a microprocessor (10) and the corresponding memory (11) in order to operate independently under the control of the control unit (13).

6.- Device for decoration of ceramic tiles, according to claim 3, characterized in that a number of heads (3) in series is arranged, so that the different printing modules (5) that constitute them occupy at least the entire width of the tile (2).

5 8.- Device for decoration of ceramic tiles. according to claim 1, characterized in that the control unit (13) has communication means (15) in order to permit the connection with other computers and to allow the remote management and verification of the device.

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ABSTRACT

DEVICE FOR DECORATION OF CERAMIC TILES

It has means (1) for conveyance of the tiles (2) that are printed by means of projection of ink, characterized in that it has at least one head (3) that is constituted by at least two independent printing modules (5) that are connected to a control unit (13) that controls the operation of each printing module (5) independently, in order to print the desired motif.

The printing band f of each printing module (5) is located after the adjacent modules (5).

The number of printing modules (5) is such that at least the entire width of the tile is covered. In order to cover this width heads may be arranged in series.

There is at least one head per color to be printed.

The entire described structure permits the printing by means of a single passing of the tile.

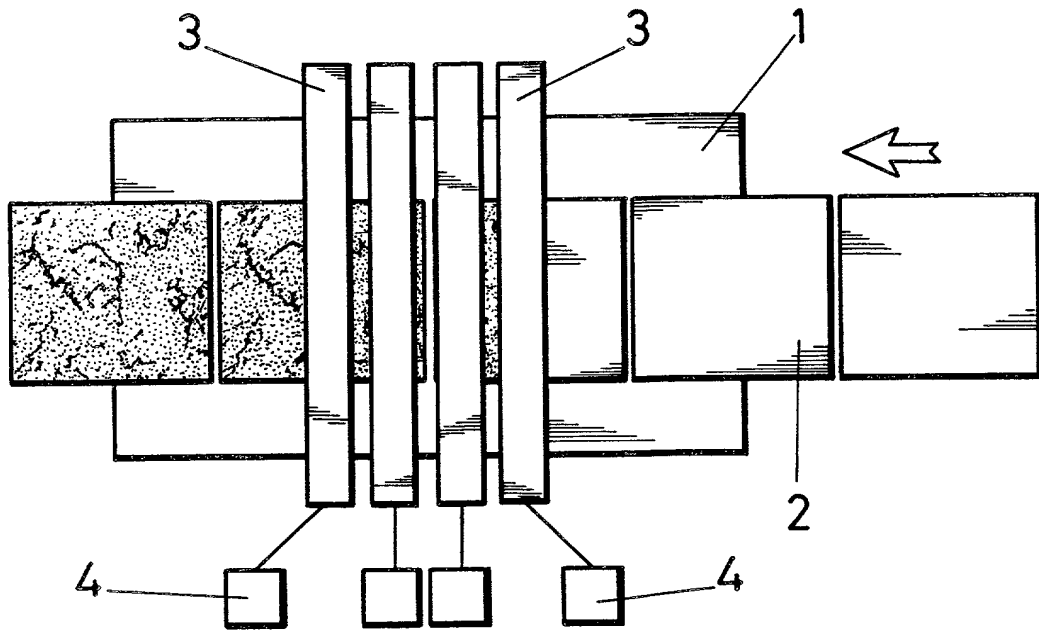


FIG.1

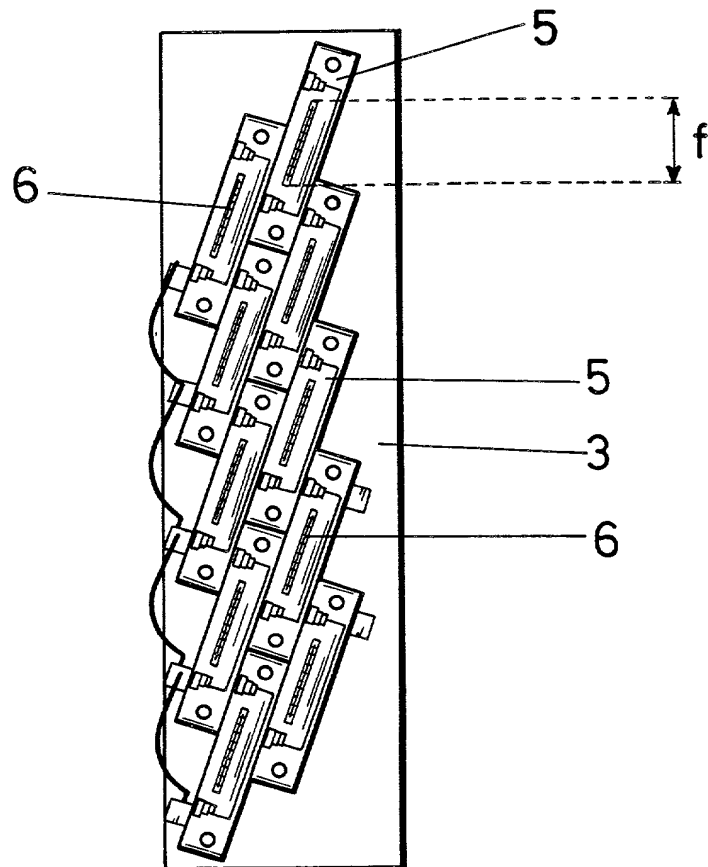


FIG.2

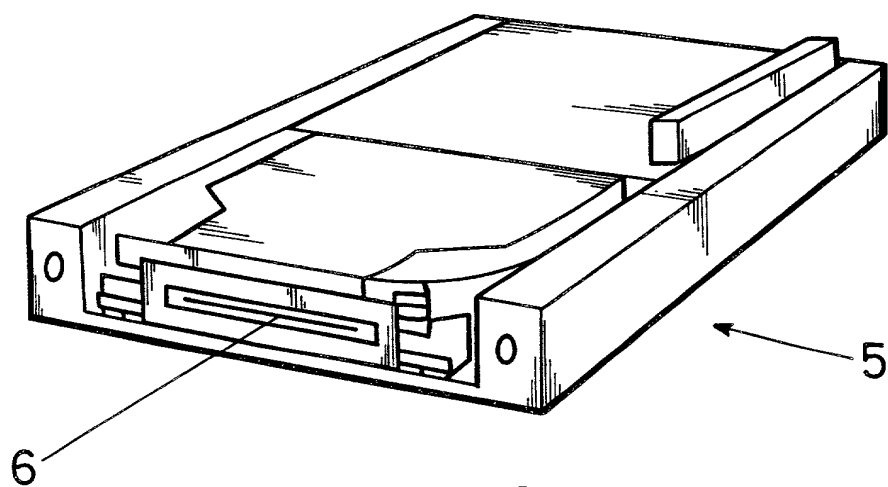


FIG. 3

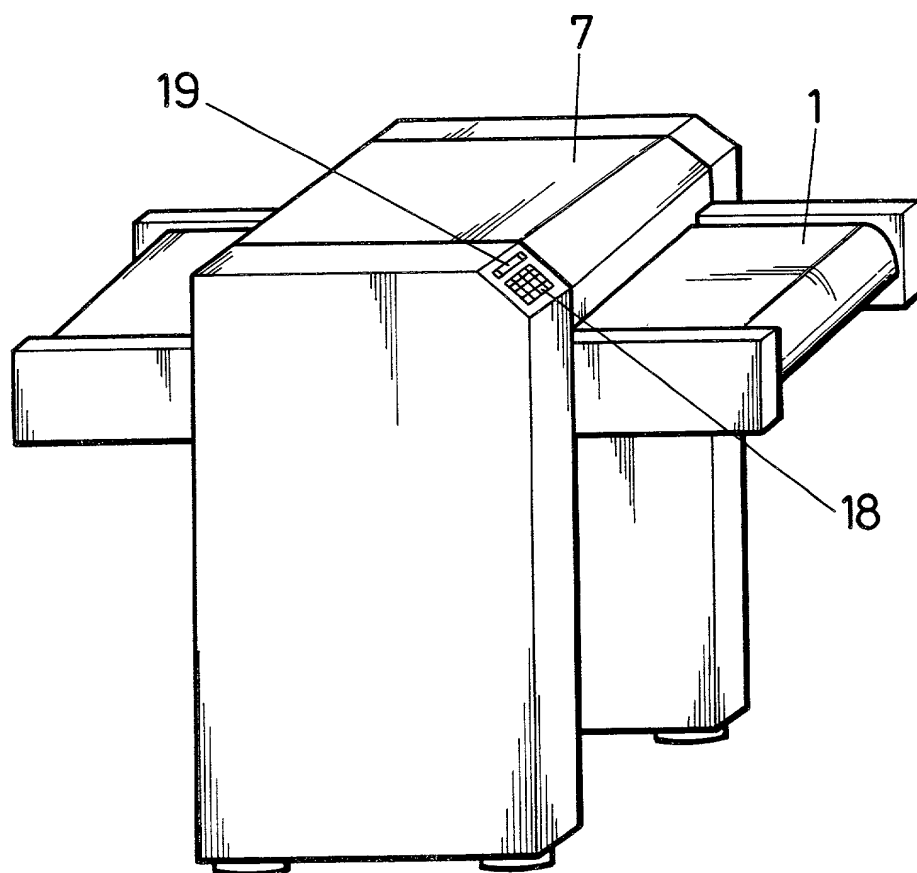


FIG. 4

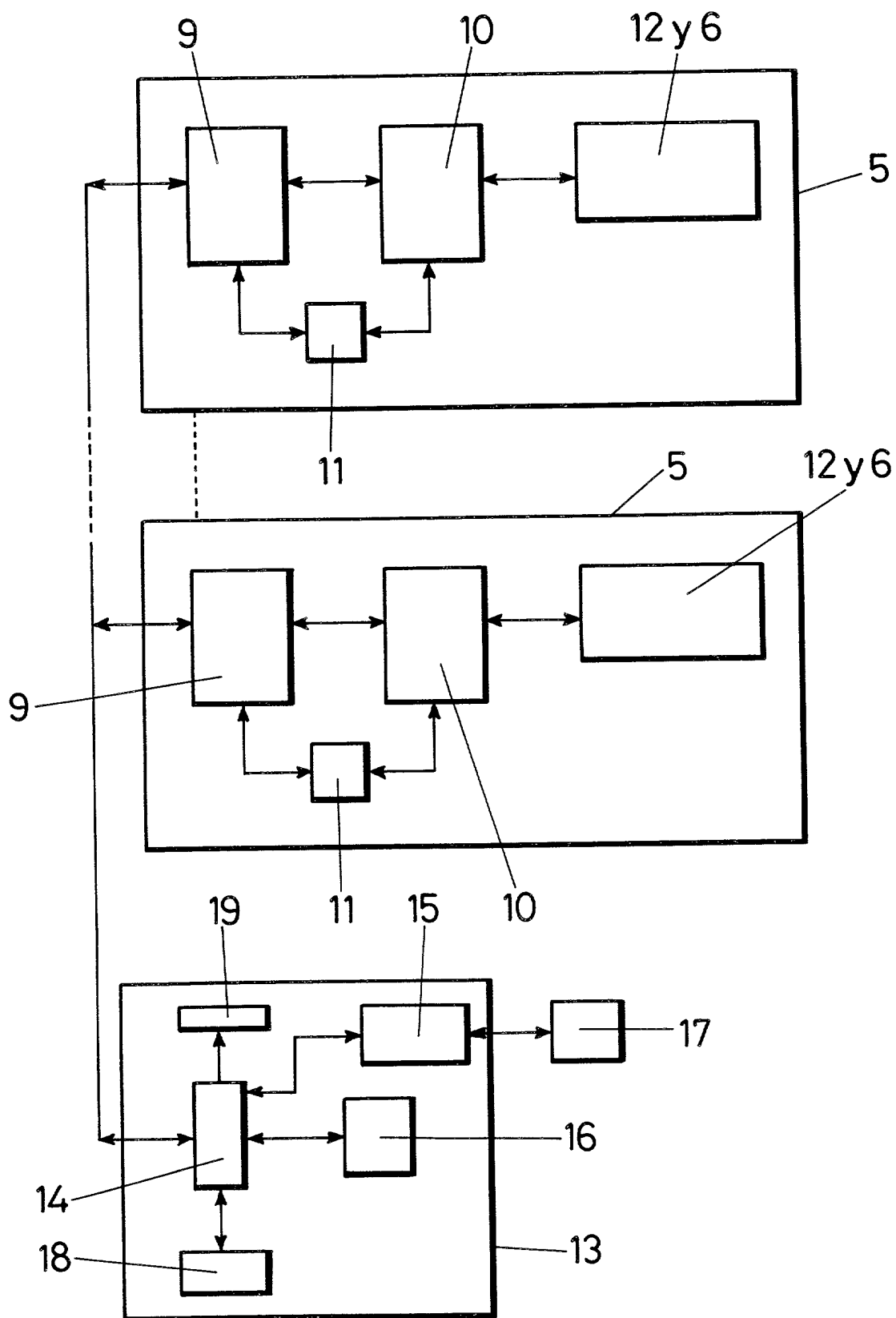


FIG.5

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below under my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DEVICE FOR DECORATION OF CERAMIC TILES

the Specification of which

☒ is attached hereto
☐ was filed on
 as Application Serial No.
 and was amended on (if applicable)

I hereby state that I have reviewed and understand the contents of the above-identified Specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

<u>PRIOR FOREIGN FILED APPLICATION(S)</u>			
<u>APPLICATION</u>	<u>COUNTRY</u>	<u>(MONTH/DAY/YYYY)</u>	<u>PRIORITY</u>
<u>NUMBER</u>			<u>CLAIMED</u>
P9802136	SPAIN	October 14, 1998	YES

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

<u>APPLICATION NUMBER(S)</u>	<u>FILING DATE (MM/DD/YYYY)</u>
------------------------------	---------------------------------

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(a) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application..

U.S. Parent Application No.	PCT Parent Number	Parent Filing (MM/DD/YYYY)	Parent Patent Number (if applicable)
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The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from Ungria Patentes y Marcas, S.A. as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

I hereby appoint as my attorneys or agents the following persons: Jack Matalon (Attorney, Registration No. 22,441); Stefan J. Klauber (Attorney, Registration No. 22,604); David A. Jackson (Attorney, Registration No. 26,742); Michael D. Davis (Attorney, Registration No. 39,161); Allan H. Fried (Attorney, Registration No. 31,253); Christine E. Dietzel (Agent, Registration No. 37,309); Donald J. Cox (Attorney, Registration No. 37,804); and Michael A. Yamin (Agent, Registration No. 44,414), said attorneys or agents with full power of substitution and revocation to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

Please address all correspondence regarding this application to:

DAVID A. JACKSON, ESQ.
KLAUBER & JACKSON
411 HACKENSACK AVENUE
HACKENSACK, NEW JERSEY 07601

Direct all telephone calls to David A. Jackson at (201) 487-5800.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States

Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

FULL NAME OF FIRST OR SOLE INVENTOR: ¹⁻⁰⁰ José Vicente TOMÁS CLARAMONTE

COUNTRY OF CITIZENSHIP: SPAIN

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Castellón
Spain

SIGNATURE OF INVENTOR José Vicente Tomás Claramonte

DATE 25-4-00

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